

**The Target Physics Basis for Inertial Confinement Fusion (ICF)  
Ignition and the Path to Potential Energy Applications\***

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**Abstract**

Congress has allocated funds in FY97, as part of the DOE Defense Programs Stockpile Stewardship Program, to begin construction of the National Ignition Facility (NIF) for ICF. The Physics and Technology basis for this facility result from an extensive series of experimental and computational accomplishments based on recommendations spelled out by a 1990 National Academy of Science review of the ICF Program. This talk will present the NIF target and laser designs and review the laser-matter coupling, implosion symmetry, and hydrodynamic instability results which form the basis the ignition goals of the NIF. There will also be a brief discussion of the approaches that can be developed to determine the feasibility of future energy applications of ICF.

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